

Eric Brochu

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I have an academic background in Machine Learning and Artificial Intelligence and extensive industry experience. I have taken on a variety of technical and leadership roles as needed to help ship high-profile features and apps.

Education

2011	PhD, Computer Science Nando de Freitas, supervisor. Thesis: Interactive Bayesian Optimization	University of British Columbia
2004	MSc, Computer Science	University of British Columbia
1998	BSc, Computer Science	University of Regina
1997	BA, English w/minor in Film Studies	University of Regina

Employment

since apr 2020	Principal Member of Technical Staff	Tableau Canada Vancouver
apr 2019 - mar 2020	Staff Software Engineer, Machine Learning	
mar 2016 - apr 2019	Senior Software Engineer, Machine Learning Working with team of engineers and scientists to add Recommendations and Automated Insights features to Tableau's data visualization product. I've acted as the primary ML engineer on our first group of recommendations features for data sources and tables, which shipped in 2017. Since then I've been working both to ship new features and work to grow Tableau's ML delivery strategy. As my duties have changed, I've been deeply involved in every step of the process, from feature conception, through prototyping and iteration, to productization and deployment infrastructure, to collecting feedback and marketing. I've acted as scrum master, organized an ML and Data Science "virtual team", coached ML engineers, written academic papers and technical documents and given talks to Tableau internal and external audiences. My combination of research, engineering and leadership skills had given me an opportunity to cross feature teams and work directly with senior management on Tableau's Machine Learning strategy as well as individual features.	
2011 - 2015	iOS App Developer, etc Developer on popular iOS photo editing apps Color Splash and Juxtaposer. As member of a 2-4 person studio, I was also deeply involved in UI/UX design, marketing, project management, customer support, etc. Releases I worked on have been featured by Apple in the iOS App Store numerous times and have made it into the top 10 Paid Apps list in US, UK, Canada and other territories.	Pocket Pixels Vancouver
2005 - 2009	Senior Research Engineer Worked on Zite news recommender. Algorithms I developed and implemented became a significant part of the Zite recommendation engine, which was acquired by Flipboard in 2014.	Zite Vancouver
2001-2006, 2009-2010	Research Assistant/Teaching Assistant	University of British Columbia Vancouver
2001	Software Engineer	SOMA Networks Canada Toronto
1999 - 2001	Compiler Optimization Developer	IBM Canada Toronto

last updated March 1, 2020

Technical Skills

*Python,
ML research*

Since 2006 my professional and academic Machine Learning work has mostly involved Python, with some additional work in Java and C/C++. I extensively used many numerical and scientific computing packages, including NumPy, SciPy, Scikit-learn and Theano.

*Objective C,
iOS App dev*

From 2011 to 2016, I worked extensively with Objective-C with some C/C++ and using Apple's iOS frameworks and developer tools, such as Xcode. Third-party frameworks include ReactiveCocoa and PromiseKit (for functional programming) and OpenCV (for Computer Vision).

other At other points in my career I have used MATLAB, Octave, JavaScript, Lua and other languages.

Research Interests

*Bayesian
optimization*

The focus of my academic work has always been AI tools that augment human decision making. My PhD work was a system to assist humans in efficiently finding solutions to difficult problems by using Machine Learning (primarily Bayesian optimization) to formulate minimal sets of questions or queries expected to be maximally informative.

*applied
ML & AI*

I am very interested in applying ML to real problems. Applications of Machine Learning and Artificial Intelligence I've researched and/or developed (academically or industrially) include: aiding users in finding parameters for procedurally-generated animation and graphics, efficiently training computer vision and robotics systems, internet search and recommendation, and automatic hyperparameter tuning for Machine Learning algorithms.

Selected Publications

D Ting and **E Brochu**. 2018. *Optimal Subsampling with Influence Functions*. Thirty-Second Annual Conference on Neural Information Processing Systems (NeurIPS 2018).

E Brochu, T Brochu and N de Freitas. 2010. *A Bayesian Interactive Optimization Approach to Procedural Animation Design*. ACM SIGGRAPH/Eurographics 2010 Symposium on Computer Animation.

E Brochu, A Ghosh and N de Freitas. 2007. *Preference Galleries for Material Design*. ACM SIGGRAPH Sketch. **First Place, ACM SIGGRAPH 2007 Student Research Competition**.

complete list at haikufactory.com/publications/

Professional and Academic Activities

US Patents 20070156615 & 20080262986 entitled *Method for training a classifier*. Co-inventor with A Davar and M Klaas.

Program committee, NIPS 2011 Workshop on Bayesian Optimization, Experimental Design and Bandits.

Submission reviewer: UIST (2019), NIPS/NeurIPS (2018, 2015, 2011, 2010, 2008, 2007), UAI (2017), IJCAI (2009), GI (2008), ICML (2007), AAAI (2007), SIGGRAPH (2006, 2005, 2004), CVPR (2005, 2004).

Selected PhD awards

First Place, ACM SIGGRAPH 2007 Student Research Competition
Walter C Koerner Fellowship
University of British Columbia Graduate Fellowship (UGF)
NSERC Doctoral Scholarship (PGS D)